6.0 FINDINGS AND CONCLUSIONS

6.1 FINDINGS

6.1.1 Consequences of Preferred Alternative/Proposed Action

Dredging in general, creates impacts to aquatic systems. Short-term, temporary impacts to water quality will be associated with dredging the marina and the access channel. The primary, short-term water quality impact will be an increase in turbidity in the dredging area due to sediment being suspended in the water column. The extent of the turbidity plume will be based upon the dredging method, grain size of sediment, prevailing winds, currents in the vicinity of the project area, and the tidal cycle. The short-term nature of turbidity impacts is not expected to have an adverse effect on SAV or aquatic habitat in the areas adjacent to dredging operations due to the time of year the dredging would occur. An additional short-term, temporary impact may be the release of minimal amounts of ammonia due to dredging operations. If anoxic sediments are uncovered during the dredging process, ammonia may be released, although it would most likely be diluted rapidly in the water column and have no long-term adverse impacts, such as biological toxicity or nitrification in the project area. Based on test results from sediment collected within the Dogue Creek Marina in 2001, and the marina and the access channel in 2004, no adverse impacts from toxic substances are anticipated. Biological and chemical oxygen demand is not anticipated to be a significant impact, although local changes to dissolved oxygen may occur during the dredging process.

Dredging operations will disturb shallow water and bottom habitat for fish, SAV, and benthic communities in the project area. Mobile fish species are expected to avoid the dredging operations, although juvenile, larval, and less mobile species may be adversely and permanently impacted by the dredging activities. Both the benthic community and SAV within the footprint proposed for dredging would be removed due to dredging. However, it is assumed that adjacent benthic and SAV species will relocate to the areas proposed for dredging after the dredging operations cease. Nearby wildlife species that nest in the vicinity of Dogue Creek may be temporarily disrupted during dredging operations due to noise generated by the dredging equipment.

Short-term, temporary impacts to the air quality in the vicinity of the dredging area may occur. Dredging, construction, and placement activities may cause elevated particulate emissions due to the transportation of material. The air quality impacts during material placement are expected to be minimal and short-term.
Short-term temporary impacts to noise in the vicinity of the dredging and placement area may occur. Activities that may cause elevated noise levels include the dredging and transportation of material to the placement site.

The operation of the tugboats pushing the barges could affect water quality through the introduction of chemicals and oils into the waters via engine exhaust or during maintenance and fueling through drips and spills. There may be minimal, temporary, impacts to air quality and noise associated with the tugboat moving the barges. The barges may impact other boat traffic in Dogue Creek and the Potomac River. Short-term, minor, adverse impacts to fish may occur

during transportation of dredged material by the barges. Fish in the area are expected to avoid the barge's pathway. Fish may relocate until the dredging activity ceases.

The water line replacement project at Dogue Creek consists of decommissioning an existing water line and replacing the water line in-kind at a greater depth using HDD. This method is not anticipated to impact any natural resources. The staging areas are located in upland sites in previously disturbed areas. Each staging area will occupy less than 7,000 square feet. Access roads are also currently in place. No disturbance of Dogue Creek will occur as a result of the replacement of the water line project. There will be no impacts to wetlands, surface waters, or buffer areas. Submerged lands will only be affected by HDD under Dogue Creek. The proposed utility alignment is the product of several design iterations that eliminated the impact to wetlands by avoiding wetlands.

The replacement of the existing in-water marina structures includes the replacement of the existing 106-slip marina located in Dogue Creek. Short-term, temporary impacts to water quality are anticipated associated with increased turbidity in the immediate area. The construction and maintenance of docks in the marina would create local negative impacts to water quality due to the associated removal and installation of pilings. There will be no negative impacts to wetlands, floodplains, and aquatic vegetation and wildlife. Short-term, temporary noise impacts may be caused by construction activities.

Mitigation and Monitoring

The dredging window was designed to conduct dredging activities during the least sensitive time of year for vulnerable species. The dredging window avoids the sensitive time of year for anadromous fish spawning and SAV growth. Best management practices will be employed during all phases of the Proposed Action to be protective of natural resources.

Best management practices, including sediment and erosion control measures, will be used during the implementation of the Proposed Action. Silt fences will be erected around the water line replacement site and the disturbed areas will be re-graded and re-seeded at the end of construction activities.

Monthly discharge monitoring reports are due to VDEQ as part of Dominion Generation's VPDES permit for Ash Pond D at Possum Point. Dominion is responsible for completing these reports and submitting them to VDEQ.

Conservation Measures

The Integrated Resource Management Plan (INRMP) and the Bald Eagle Management Plan (BEMP) for Fort Belvoir both contain management and protection guidelines for protection of nesting and foraging bald eagles utilizing habitat within the Fort Belvoir property. The two documents provide the following specific measures:

INRMP

- Continue to implement the bald eagle management actions set forth in the Bald Eagle Management Plan
- Continue to manage the four designated eagle management areas on Ft. Belvoir: Active Nest Site Protection Area, Historic Nest Site Protection Area, High-Use Foraging Area, Occasional-Use Foraging Area to protect bald eagle habitat on post.
- Continue to implement bald eagle habitat enhancement projects, including correcting electrocution hazards by installing raptor guards, or re-configuring or replacing all electric poles that pose an electrocution hazard, and making selective timber cuts in planted pine stands to improve nest habitat conditions.
- Develop and implement a bald eagle awareness-training program for installation personnel, and a public education program, including information displays and handout materials, on bald eagles to safeguard against disturbance to bald eagles.
- Complete revisions to the Bald Eagle management Plan on a 5-year cycle. Perform an annual review of the plan.
- Continue to perform annual bald eagle surveys in accordance with the Bald Eagle Management Plan: annual nest habitat surveys and seasonal foraging habitat surveys. Maintain the results in the installation GIS.

BEMP

- Designation of bald eagle management areas
- Implementation of habitat enhancement projects
- Development and implementation of awareness training and public education projects concerning protection of bald eagles.
- Conduct surveys and monitor existing and potential nest sites, foraging areas, and roosting areas on the installation.
- Review the BEMP annually and update at the end of the 5-year period. If new nest sites are identified, or if a communal roost becomes established, modify the BEMP to afford the appropriate levels of protection to those habitat areas in accordance with USFWS and VDGIF management requirements.

In addition to the ongoing protection and management guidelines contained within the INRMP and BEMP, Fort Belvoir proposes the following conservation measures of the Dogue Creek dredging operation on bald eagles.

1. Maintain forest buffers for bald eagle nests and bald eagle foraging areas

Fort Belvoir's current INRMP (2001) and BEMP (2001) establish Eagle Management Areas, that include a 750-foot primary nest protection zone and a 1,320-foot secondary nest protection zone around bald eagle nests, and a 750-foot wide foraging area buffer along the entire installation shoreline. (These zones are consistent with the joint U.S. FWS and VDGIF Eagle Protection Guidelines for Virginia.) Fort Belvoir proposes to continue to include these eagle management areas within future revisions of the INRMP and BEMP.

The primary and secondary nest protection zones are entirely forested for the lower Dogue Creek nest and for the training area nest. At the upper Dogue Creek nest, while the bulk of the primary nest protection zone is forested, only about half the secondary nest protection zone is forested. The other half has developed features (military housing and a utility substation) that were constructed years before the nest was established. Fort Belvoir proposes to maintain all presently forested areas within these nest zones as forested buffers for the nests.

The bulk of the Fort Belvoir shoreline is undeveloped and forested. Developed land uses are confined to the Gunston Cove shoreline, the Dogue Creek Marina and the Officers Club at the mouth of Dogue Creek. Fort Belvoir's current Master Plan (1993) does not identify any further development along the shoreline that would require clearing forested shorelines. Fort Belvoir's INRMP and BEMP call for maintaining a 750-foot wide forested buffer inland along the presently forested shoreline to protect bald eagle foraging, loafing, and roosting habitat. Fort Belvoir proposes to continue to include this forested shoreline buffer in future updates to the INRMP and BEMP.

2. Provide out reach to educate users of the Dogue Creek Marina regarding bald eagle protection

Fort Belvoir proposes to develop and post information on bald eagle protection at the marina. Such postings will include maps indicating bald eagle protection areas along Dogue Creek, and directions on how boaters can minimize potential impacts to eagles. Fort Belvoir will continue to coordinate directly with the marina operators, as well as user groups of the marina (e.g., high school rowing crews, hunting program managers), as necessary regarding bald eagle protection. Fort Belvoir will develop and distribute informational materials, as appropriate.

3. Restrict human activity that could disrupt bald eagles

Fort Belvoir will continue to post and maintain signs on the landward side of the eagle nest protection areas marking the areas as seasonally closed. Fort Belvoir will post and maintain signs along the shorelines to warn boaters that landing and accessing the shoreline is prohibited. Monitoring and enforcement will continue to be performed by the installation game wardens and military police.

4. Restrict hunting activity during the nesting season

Fort Belvoir will continue to close the deer hunting areas that encompass the nest protection zones of the Dogue Creek nests on November 15 each year, and the training area nest on December 15 each year. Fort Belvoir will continue to close any installation-controlled waterfowl blinds within the nest protection zones on Dogue Creek November 15 each year. Monitoring and enforcement will continue to be conducted by installation game wardens.

5. Monitoring

Fort Belvoir will monitor eagle nesting and foraging activities during the dredging and post-dredging period to assess dredging effects as well as to assess post-dredging boat activity and its effects on bald eagles.

The implementation of the conservation measures proposed in Section 4.8 as well as the continued implementation of the Fort Belvoir BEMP and monitoring of the nesting, foraging, and roosting habitat for bald eagles on the Fort Belvoir property will provide continued protection for the breeding and non-breeding resident and migrant bald eagles in the Fort Belvoir and Dogue Creek area.

Irreversible and Irretrievable Commitments of Resources

The Dogue Creek Marina is an existing, active marina. The Proposed Action includes the maintenance dredging of the marina and the access channel to restore previous functions of the facility. If the marina and access channel are not restored to previously authorized depths, the marina will fail and the facility will likely be abandoned.

Unavoidable Adverse Effects

Unavoidable adverse effects associated with the Proposed Action include the probable disturbance of bald eagles during the dredging operations. Additional unavoidable impacts include a temporary impact to water quality caused by the turbidity in Dogue Creek during dredging and marina in-stream facilities replacement, temporary loss of non-native hydrilla dominated SAV, temporary adverse impacts to benthic resources within the area to be dredged and the areas immediately adjacent to the proposed dredge area, and minor, temporary impacts to the aesthetics of Dogue Creek. An adverse impact to recreational waterfowl hunting activities will occur within Dogue Creek because a portion of the Dogue Creek shoreline will be closed to hunters during dredging operations. The Dogue Creek Marina will be unavailable during the dredging and marina in-stream facilities replacement activities and therefore the Proposed Action will create an additional adverse impact on recreation at the Post; however, the result of the Proposed Action will be a long-term positive impact to recreational boating for the Fort Belvoir community.

Cumulative Impacts

The restoration of previous function to the marina and the access channel may increase the usage of Dogue Creek and the adjacent Potomac River by recreational boaters. This increase, along with a general increase in access along the Potomac River may cause adverse impacts to water and air quality, a reduction in the quality of the water-based recreational opportunities in the area, and a negative impact to bald eagle nesting, roosting, and foraging activities. The Dogue Creek dredging project would not exacerbate the continuing trend of shoreline development within the region (a major cause of loss of suitable bald eagle habitat) and would not have a cumulative effect on the population in the Action Area.

6.1.2 Consequences of the No Action Alternative

The lack of full functionality of the marina due to insufficient water depths would continue and eventually worsen, causing the decline of marina operations and the eventual closing and abandonment of the facility.